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generally over the country. Cheap and efficient railway transportation makes possible the concentration of industry when that is most economical, and it also enables manufactories to be started in hundreds of places where they otherwise could not exist. The progressive diversification of industry throughout the United States is enriching the tonnage of the railroads with an enlarging percentage of the higher and more profitable classes of freight and is establishing a broader and more stable traffic basis for all our railway systems.

## DETERMINATION OF THE HEIGHT AND GEOGRAPH-ICAL POSITION OF MT. McKINLEY

The Society is indebted to Superintendent Otto H. Tittmann of the U. S. Coast and Geodetic Survey for an advance copy of the Report made to him on a determination of the height and geographical position of Mt. McKinley. This work was done as an incident in the survey of Cook Inlet, on which the Survey is at present engaged. The Report, which is signed by Mr. William Bowie, Chief of the Computing Division, is as follows:

"I have the honor to report that the computation and adjustment of the horizontal and vertical angles to determine the geographic position and elevation of Mt. McKinley, Alaska, have been completed. The resulting position for that mountain, on the Valdez Datum, is

The Valdez Datum is based upon the value of the longitude at the astronomical station in the town of Valdez and the mean of the latitudes observed at three astronomical stations in Prince William Sound, Alaska, and is the datum upon which are based the Coast Charts between Cape St. Elias and the Alaskan Peninsula.

"The resulting elevation of Mt. McKinley above mean sea level is 20,300 feet.

"The above position was obtained from the adjustment of horizontal directions observed from four stations of the Cook Inlet triangulation, three of which were occupied in 1909, while one was occupied the previous year. All of the observations were made by the party under Assistant H. W. Rhodes, commanding the U. S. Coast and Geodetic Survey Steamer McArthur. The angle subtended

at Mt. McKinley was 15° 08′ and the correction to any one direction, as given by the adjustment, was not greater than 11″. It is seen from this that the geographic position is well determined. The nearest point from which the mountain was observed was 204 kilometers (127 miles) while the farthest point from which it was observed was 302 kilometers (188 miles).

"Having found the distance from certain stations to the mountain, its elevation was determined from vertical angles taken at Race Point and Little, two of the stations from which horizontal directions were observed. The two values of the elevation of Mt. McKinley obtained from them are 6179.7 meters and 6194.3 meters. The weighted mean of these two elevations is 6187.5 meters or 20,300 feet. This value is identical with the mean value previously adopted by the U. S. Geological Survey which has superseded the value 20,464 feet given in the Dictionary of Altitudes, published by that Bureau in 1906.

"The coefficient of refraction which was deduced from the observations made in 1894 to determine the elevation of Mt. St. Elias was used in determining the elevation of Mt. McKinley. Its value is 0.083. It was believed to be nearer the truth than the coefficient which was determined from the reciprocal observation made in Cook Inlet in 1909, because those observations were made almost entirely over water, while the lines of the two mountains (Mt. St. Elias and Mt. McKinley) were, for the most part, over land and ice.

"It is believed that the value, 20,300 feet, for the elevation of Mt. McKinley is correct within 150 feet."

## THE RETURN OF HALLEY'S COMET

The Weather Bureau of the Manila Observatory has printed a paper\* on the return of Halley's comet and the alarm manifested in some quarters over the information that, on May 18-19 the earth will pass through the tail of the visitor. The paper is very instructive and also a plain exposition of the groundlessness of fear with regard to comets in general and particularly as concerns the present return of Halley's comet. The more important information it contains is presented here.

<sup>\*</sup>The Return of Halley's Comet and Popular Apprehensions. By Rev. George M. Zwack, S. J., Secretary of the Weather Bureau. 22 pp. Manila Bureau of Printing, Manila, 1910.